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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/509,453
Filing Date: September 28, 2004
Appellant(s): RAAYMAKERS, JEROEN ARNOLDUS LEONARDUS JOHANNES

Edward Goodman
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 01/04/08 appealing from the Office action mailed 08/01/07

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The following ground(s) of rejection are applicable to the appealed claims:

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,602,566	Motosyuku et al.	02-1997
5,627,808	Hajjar et al.	05-1997
5,206,848	Kusano et al.	04-1993
6,714,496	Park et al.	03-2004
6,181,670	Nagasato	01-2001
6,266,301	Morimoto	07-2001

. **(9) Grounds of Rejection**

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1, 4, 6, 8-10, 12, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park et al., US Patent 6,714,496 in view of Kusano et al., US Patent 5,206,848, further in view of Hajjar et al., US Patent 5,627,808.

Regarding claims 1 and 14, Park et al. teaches a tilt control device for controlling a radial tilt of a recording surface of an optical disc with respect to an optical recording/reproducing beam (see abstract), said tilt control device comprising: control means such as a processor for generating two focus controlling outputs (FET1 and FET2); and actuating means such as an actuator (inherent structure that moves

element 20 in the focusing direction and element 40 of figure 5, which is a "tilt motor" as explained in column 7, line 55) for receiving said two focus controlling outputs for controlling a focusing state and the radial tilt of the optical recording/reproducing beam utilizing said received two focus controlling outputs (FET1 and FET2). Park et al. does not but Kusano et al. teaches actually tilting the beam instead of the disk (column 1, lines 54-60). It would have been obvious to one of ordinary skill in the art at the time of the invention to include the concept of tilting the beam instead of the disc as taught by Kusano et al. into the system of Park et al. The motivation would be to contribute to a compact design of the pickup and lower the manufacturing cost (column 1, lines 35-39 of Kusano et al.). Park et al. in view of Kusano et al. does not but Hajjar et al. teaches that said control means or processor determines a radial tilt value based on a differentiation of focus control values obtained at different radii of said optical disk (column 3, lines 45-55). It would have been obvious to one of ordinary skill in the art at the time of the invention to include the concept of storing a mean value determined in the given way to be used in tilt control as taught by Hajjar et al. into the system of Park et al. in view of Kusano et al. This would serve to fully compensate for cross-track tilt that may be present between the media and the optical head (column 1, line 62-column 2, line 4 of Hajjar et al.).

Regarding claim 9, Park et al. teaches an optical disc player comprising a tilt control device as claimed in claim 1 (shown in figure 5).

Regarding claim 10, Park et al. teaches a tilt control method for controlling a radial tilt of a recording surface of an optical disc with respect to an optical

recording/reproducing beam, said tilt control method comprising the acts of: generating a focus controlling output and a tilt controlling output (FET1 and FET2 from element S20 of figure 1); receiving said focus and tilt controlling outputs at an actuator (inherent structure that moves element 20 in the focusing direction and element 40 of figure 5, which is a "tilt motor" as explained in column 7, line 55) to control a focusing state of the optical recording/reproducing beam and the radial tilt utilizing said received focus and tilt controlling outputs (column 2, lines 9-35), characterized in that said method further comprises the step of: determining a radial tilt value based on a differentiation of focus control values (FET1 and FET2). Park et al. in view of Kusano et al. does not but Hajjar et al. teaches that said control means determines a radial tilt value based on a differentiation of focus control values obtained at different radii of said optical disk (column 3, lines 45-55). It would have been obvious to one of ordinary skill in the art at the time of the invention to include the concept of storing a mean value determined in the given way to be used in tilt control as taught by Hajjar et al. into the system of Park et al. in view of Kusano et al. This would serve to fully compensate for cross-track tilt that may be present between the media and the optical head (column 1, line 62-column 2, line 4 of Hajjar et al.).

Regarding claim 4, Hajjar et al. teaches the device as claimed in claim 1, wherein said control means ("control actuator") positions a sledge (optical head of element 9 in figure 6 is designed to move to control tracking to serve the same function as the sledge) at at least two different radial positions, controls said actuating means to adjust

the focus, and measures said focus control values at said at least two different radial positions (column 3, lines 45-50).

Regarding claims 6 and 19, Hajjar et al. teaches the device as claimed in claims 1 and 14, wherein said control means such as a processor generates said focus controlling outputs based on measured mean focus control values and corresponding radial steps between two measurements (column 3, line 45 -column 4, line 4). The idea of finding the mean based on various measurements from different radial positions is given in column 1, lines 43-61. The given section refers to taking measurements at different radial positions to find calibration radii. Then, a signal representative of the focus based on the radius is determined. The concept of finding a representative based on the radial position serves the same purpose as the appellant.

Regarding claims 8 and 18, Hajjar et al. teaches the device as claimed in claims 1 and 14, wherein said device further comprises a tilt table ("LUT" of column 4, lines 5-21) for storing an information indicating mean disc tilt values and corresponding radial positions in figures 3, 4, and 5.

Regarding claim 12, Hajjar et al. teaches the method as claimed in claim 10, wherein said receiving said focus and tilt controlling outputs act comprises using a mean focus controlling output for tilt control (column 2, lines 25-33). The idea of finding the mean based on various measurements from different radial positions is given in column 1, lines 43-61. The given section refers to taking measurements at different radial positions to find calibration radii. Then, a signal representative of the focus based

on the radius is determined. The concept of finding a representative based on the radial position serves the same purpose as the appellant.

2. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Park et al. in view of Kusano et al. in view of Hajjar et al., further in view of Morimoto, US Patent 6,266,301.

Regarding claim 3, Park et al. in view of Kusano et al. teaches the device as claimed in claim 1 but does not teach the further limitations of claim 3 of PID controller outputs.

Morimoto teaches a device wherein said focus controlling outputs are Proportional Integral Derivative PID controller outputs (shown in figure 10 and explained in column 7, lines 15-22).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include the concept of PID controller outputs as taught by Morimoto into the system of Park et al. in view of Kusano et al. in view of Hajjar et al. This would serve the purpose of lowering costs (column 2, lines 39-41 of Morimoto).

3. Claims 2, 11, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park et al. in view of Kusano et al. in view of Hajjar et al., further in view of Nagasato, US Patent 6,181,670.

Regarding claims 2 and 11, Park et al. in view of Kusano et al. in view of Hajjar et al. teaches the device and method as claimed in claims 1, 10, and 14 but does not teach the further limitations of claims 2 and 11 of a split coil arrangement.

Regarding claims 2 and 15, Nagasato teaches in figure 7 the device wherein said actuating means or actuator comprises a split focus coil arrangement for providing focus and tilt adjustment (done by elements 112 and 114), and said control means or processor supplies said two focus controlling outputs (currents sent to drive each coil) to respective coils of said split focus coil arrangement.

Regarding claim 11, Nagasato teaches the method as claimed in claim 10, wherein said receiving said focus and tilt controlling outputs act comprises using a split coil arrangement arranged to provide a focus adjustment, said focus and tilt controlling outputs (currents) being supplied to respective coils of said split coil arrangement (column 12, lines 14-26).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include the concept of split coil as taught by Nagasato into the system of Park et al. in view of Kusano et al. in view of Hajjar et al. This would serve to provide an objective lens driving device capable of efficiently and quickly correcting the tilt of an objective lens relative to a signal recording surface of an optical disk so that the comatic aberration of a spot formed by a light beam on the signal recording surface of the optical disk is reduced (column 2, lines 55-62 of Nagasato).

4. Claims 5 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park et al. in view of Kusano et al. in view of Hajjar et al. as applied to claim 1 above, and further in view of Motosyuku et al., US Patent 5,602,566.

Park et al. in view of Kusano et al. in view of Hajjar et al. teaches all of the limitations of claims 1 and 14.

Park et al. in view of Kusano et al. in view of Hajjar et al. does not teach the limitations of claims 5 and 16.

Motosyuku et al. teaches a device, wherein said control means such as a processor calculates (based on FET1 and FET2) and is arranged to set a mean disc tilt value in a tilt register (column 7, lines 32-50). The device taught records the tilt angle value of a processor into a register. This is similar to recording the tilt value of a disc as both inventions relate to fixing errors caused by tilt, although they are for two different devices.

It would have been obvious to one of ordinary skill in the art at the time of the invention to include the recording of the mean disc tilt value previously calculated into a tilt register as taught by Motosyuku et al. into the system of Park et al. in view of Kusano et al. because it is well known in the art that registers are reliable storage means for values that must be used in other calculations.

(10) Response to Argument

Appellant argues that FET1 and FET2 of Park et al. are not "focus controlling outputs" as claimed in claim 1. The examiner disagrees. By controlling tilt, focus is also inherently controlled. When the tilt of the disc is changed, the focal point is also changed. Thus, by indirectly controlling the focus, FET1 and FET2 are focus controlling outputs. As the claim does not recite that these outputs control focusing state and radial tilt respectively, the rejection is believed to be proper. Both of these can be controlled by both signals, without the signals being designated as serving one purpose or the other. Time measurements being used to control these elements is still a type of signal.

Appellant argues that Kusano et al. and Hajjar et al. do not teach the limitations of claim 1 and Morimoto does not teach the limitations of claim 3. However, Park et al. is relied upon and teaches the limitations as explained above.

Appellant argues that Nagasato does not teach a split focus coil. The examiner disagrees. As there are two separate coil arrangements in the reference (elements 112 and 114 of figure 7), the coils are divided. There are two separate tracking and focusing coils in each arrangement (column 12, lines 14-26). This means that the forces acting on the coils are split, yielding a split coil arrangement.

Appellant argues that Motosyuku et al. is not analogous art as it is not directed to optical disk drives. The examiner disagrees. The nexus is that both are directed to tilt detection. Thus, Motosyuku et al. is related art.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Parul Gupta

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